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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,029	02/14/2001	Jae-Ho Moon	P56310	8245

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EXAMINER	
HUFFMAN, JULIAN D	

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 01/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No.	Applicant(s)	
	09/782,029	MOON ET AL.	
	Examiner	Art Unit	
	Julian D. Huffman	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,6,27,36 and 37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3,6,27,36 and 37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 3, 6, 27, 36 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujiyama et al. (JP 9-48121) .

Fujiyama et al. disclose an ink jet printhead, comprising:

a substrate being a single integrated monolithic and homogenous unit of silicon (fig. 5, element 3, see section 0006 of machine translation from Japanese Patent Office), said substrate, having a rear surface, said rear surface having a channel (4a) having a predetermined depth, wherein a plurality of ink feed holes are formed on a bottom of the channel perforating said substrate;

a nozzle plate coupled to a front surface of the substrate (17), said nozzle plate being perforated by a plurality of chamber-orifice complex holes (7), wherein each chamber-orifice complex hole corresponds to at least one of said plurality of ink feed holes;

a plurality of heaters (5a, figs. 4 and 9) disposed on the front surface of the substrate (10), each one of said plurality of heaters being located near corresponding ones of said plurality of chamber-orifice complex holes, wherein each one of said

plurality of ink feed holes is formed at a center portion of a corresponding one of said plurality of chamber-orifice complex holes (fig. 5), and each one of said plurality of said heaters surrounds corresponding ones of said plurality of ink feed holes (fig. 5);

wherein each one of said plurality of heaters is of an omega shape that surrounds said corresponding feed hole (figs. 4 and 9);

wherein each chamber-orifice has a truncated conical shape (0028), wherein a lower end of said chamber orifice facing said substrate faces the corresponding ink feed hole and heater formed on the substrate and the other end having a smaller diameter faces toward an outside of said ink-jet printhead (fig. 5);

each chamber orifice hole having a cylindrical shaped portion on a portion of said chamber-orifice hole closest to a side of said nozzle plate (fig. 5, near the substrate, the hole is cylindrical) that attaches to said substrate and a conical shaped portion on a portion of said chamber-orifice hole closest to a side of said nozzle plate opposite from where said nozzle plate attaches to said front surface of said substrate (the side closest to the nozzle plate substrate has a conical shaped portion), said conical shaped portion being a section of a right circular cone with an axis perpendicular to said front surface of said substrate and perpendicular to said surfaces of said nozzle plate; and

said cylindrical shaped portion having an axis that is perpendicular to said front surface of said substrate and perpendicular to surface of said nozzle plate (fig. 5).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murthy et al. (U.S. 6,045,214) in view of Bassous et al.

Murthy et al. disclose an ink-jet printhead, comprising:

a substrate being a single integrated monolithic and homogenous unit (fig. 1, element 12), said substrate, having a rear surface, said rear surface having a channel (28) having a predetermined depth, wherein a plurality of ink feed holes are formed on a bottom of the channel perforating said substrate (there are a plurality of nozzle arrangements with an ink feed channel for each pair);

a nozzle plate coupled to a front surface of the substrate (10), said nozzle plate being perforated by a plurality of chamber-orifice complex holes (18), wherein each chamber-orifice complex hole corresponds to at least one of said plurality of ink feed holes; and

a plurality of heaters disposed on the front surface of the substrate (22, column 2, lines 32-36), each one of said plurality of heaters being located near corresponding ones of said plurality of chamber-orifice complex holes, said nozzle plate being a single integrated monolithic and homogenous unit, each chamber-orifice hole having a cylindrical shaped portion on a portion of said chamber-orifice hole closest to a side of said nozzle plate that attaches to said substrate and a conical shaped portion on a portion of said chamber-orifice hole closest to a side of said nozzle plate opposite from where said nozzle plate attaches to said front surface of said substrate, said conical shaped portion being a section of a right circular cone with an axis perpendicular to said front surface of said substrate and perpendicular to said surfaces of said nozzle plate (fig. 1).

Murthy et al. do not expressly disclose the substrate being made of silicon.

However, Bassous et al. disclose the use of a silicon substrate (abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the substrate of Murthy et al. of silicon, as taught by Bassous et al. The reason for performing the modification would have been to enable the use of fabrication technology compatible with present day integrated circuit processing procedures utilizing semiconducting silicon (column 2, lines 46-48), allowing control circuitry to be integrated on the same substrate (column 12, lines 61-65) and enabling the individual jets to be addressed separately and controlled separately (column 13, lines 10-13).

Response to Arguments

5. Applicant argues that Fujiyama teaches away from the silicon substrate. This argument has been considered and is deemed not persuasive. The examiner agrees that Fujiyama teaches away from the use of silicon, since Fujiyama explicitly states that glass is easier to manufacture than silicon. However, the courts have made it clear that "arguments that the alleged anticipatory prior art is 'nonanalogous art' or 'teaches away from the invention' or is not recognized as solving the problem solved by the claimed invention, [are] not 'germane' to a rejection under section 102." Twin Disc, Inc. v. United States, 231 USPQ 417, 424, (Cl. Ct. 1986).

Several cases have supported this interpretation and applicant's attention is directed to MPEP 2131.04 (page 2100-77) and 2123 (page 2100-64) for further information on this matter.

Applicant's argument regarding Murthy has also been considered and is deemed not persuasive. The examiner maintains that the claims are not entitled to applicant's interpretation of a one to one correspondence between the chamber-orifice holes and the ink feed holes. Such language is not found explicitly or implicitly in the claims and the courts have maintained that the examiner is required to give the claims their broadest reasonable interpretation and that limitations from the specification are not read into the claims. It is noted that applicant has not explained how the claim language teaches this feature. Additionally, feed holes 16 also function as ink feed holes and these holes do have a one to one correspondence with the chamber-orifice holes.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (571) 272-2147. The examiner can normally be reached on 9:30a.m.-6:00p.m. Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JH
24 January 2005

Thinh Nguyen
Primary Examiner
Technology Center 2800